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Feb 27, 2001

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TITLE: Methods for using anti-.alpha.v.beta.3 integrin antibody

Detailed Description Text (53):

Isolated nucleic acid coding for the murine immunoglobulin genes may be engineered to prepare .alpha..sub.v.beta..sub.3 antibody combining regions grafted into human Ig backbones using the process known as antibody humanization (Richmann et al., Nature, Vol. 332 (1988) 323). Further, nucleic acid coding for the murine immunoglobulin genes of .alpha..sub.v.beta..sub.3 antibodies may be engineered to produce recombinant bifunctional antibodies, single chain Fv (scFv) or bispecific scFv fusion proteins that, in a single gene or gene product, combine a toxin, immunostimulatory molecule or targeting moiety with the .alpha..sub.v.beta..sub.3 -binding domain (Reisfeld, et al., Curr Top Microbiol Immunol, Vol. 213 (1996) 27; Rybak et al., Proc. Natl. Acad. Sci. USA, Vol. 89 (1992) 3165; Siegall et al., J. Immunol., Vol. 152 (1994) 2377; Naramura, et al., Immunol. Lett., Vol. 39 (1993) 91). Further, nucleic acid coding for the murine immunoglobulin genes of .alpha..sub.v.beta..sub.3 antibodies or the nucleic acid coding the humanized engrafted counterpart may be engineered to increase antigen-binding affinity using techniques known to those skilled in the art (Rheinhecker et al., J. Immunol., Vol. 157 (1996) 2989; Barbas et al., TBTECH, Vol. 14 (1996) 230; Hoogenboom, Trends Biotechnol. Vol. 15(2) (1997) 62). Recombinant .alpha..sub.v.beta..sub.3 antibodies, antibody fragments or fusion proteins derived from the same may be expressed in E coli, transgenic plants or animals (Huse et al., Science, Vol. 246 (1989) 1275; Hiatt et al., Nature, Vol. 342 (1989) 76; Morcol et al., Ann. N. Y. Acad. Sci., Vol. 721 (1994) 218; Ebert et al., Biotechnology-N-Y, Vol. 9 (1991) 835).

## CLAIMS:

6. A method for inhibiting tumor metastasis of breast carcinoma, comprising administering to a mammal in need of such treatment an anti-.alpha..sub.v.beta..sub.3 integrin monoclonal antibody selected from the group consisting of P113-7D6 (HB-12224), P112-4C1 (HB-12225), P113-12A6 (HB-12226), P112-11D2 (HB-12227), P112-10D4 (HB-12228) and P113-1F3 (HB-12229).

8. A method for inhibiting metastasis from a tumor containing human breast carcinoma, comprising administering to a mammal in need of such treatment an anti-.alpha..sub.v.beta..sub.3 integrin monoclonal antibody selected from the group consisting of P113-7D6 (HB-12224), P112-4C1 (HB-12225), P113-12A6 (HB-12226), P112-11D2 (HB-12227), P112-10D4 (HB-12228) and P113-1F3 (HB-12229).